

Nearly All Patients Hospitalized With Covid-19 Had Chronic Health Issues, Study Finds

Only 6 percent of patients at one New York area health system had no chronic conditions. Hypertension, obesity and diabetes were common.

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An intubated patient arriving at Lenox Hill Hospital Northwell Health in Manhattan earlier this month. Credit...Gregg Vigliotti for The New York Times



By [Roni Caryn Rabin](#)

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A new study of thousands of hospitalized [coronavirus](#) patients in the New York City area, the epicenter of the outbreak in the United States, has found that nearly all of them had at least one major chronic health condition, and most — 88 percent — had at least two.

Though earlier research has shown chronic conditions like obesity, high blood pressure and diabetes are common risk factors for severe Covid-19, the ubiquity of serious medical conditions in these patients was striking: Only 6 percent of them had no underlying health conditions.

“The number of patients who had chronic comorbidities surprised us,” said Karina Davidson, a senior vice president at the Feinstein Institutes for Medical Research, who was the paper’s senior author.

The paper, [published in the Journal of the American Medical Association](#), analyzed data about 5,700 Covid-19 patients admitted between March 1 and April 4 to a dozen hospitals in New York City, Long Island and Westchester County that are part of the Northwell Health system. Scientists at the Feinstein Institutes, the research arm of Northwell, used electronic health records and other demographic information to analyze the characteristics of the patients.

Dozens of children and teenagers got sick but survived, the researchers found. Women had a clear edge: Fewer were hospitalized to begin with, and they were more likely to survive.

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One in five of the hospital stays ended with the patient dying, but more than half of the patients studied were still hospitalized when the study ended. In total, 553 of the patients died.

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About a fifth of the patients — 1,151 — were put on ventilators, and most of those — 831 — were still on the machines when the study ended.

Of the other 320 intubated patients, 282 died and 38 were discharged from the hospital. Their mortality rate, 88 percent, is higher than some other [early case reports](#), which found death rates for coronavirus patients on ventilators ranging from 50 percent to close to 70 percent. Given that the length of hospital stay for these Northwell cases was relatively short, four days on average, it's possible that those who died were mainly patients who were so ill that they were unlikely to be helped by any treatment.

While the study provided a valuable granular look at the characteristics of an early onslaught of patients in the United States, Dr. Davidson cautioned that it was observational in nature, and that there was no comparison group with which to contrast frailties or outcomes.

"We're simply describing the patients who came in and required hospitalization," she said. "We are not comparing them to those who were positive and stayed out of the hospital, or who didn't get infected, or to patients with any other disease."

The researchers reported that when patients first came to the hospital and were triaged, 17 percent had an abnormal respiratory rate of more than 24 breaths per minute, and 28 percent received supplemental oxygen.

But fewer than one third of the patients had a fever, even though they were sick enough to be hospitalized, a similar observation to one noted by a large Chinese study. That has important policy implications, indicating that taking people's temperatures in order to screen them for the coronavirus — a measure that was used on cruise ships and as a way to detect illness in returning travelers at airports, and that has also been proposed for use in the workplace — is likely to miss many people who are not only asymptomatic but also acutely ill.

Nearly 60 percent of those hospitalized at the Northwell facilities had high blood pressure, 40 percent were obese, and about one-third had diabetes. Smaller numbers of patients suffered from other chronic illnesses, such as heart disease, kidney disease and chronic respiratory illnesses.

Other smaller reports from New York City area hospitals have also highlighted obesity as a complicating risk factor. One hypothesis is that obesity causes chronic, low-grade inflammation that can lead to an increase in circulating, pro-inflammatory cytokines, which may play a role in the worst Covid-19 outcomes.

Dr. Leora Horwitz, an associate professor at NYU Langone Health whose recent study of Covid-19 patients found that obesity was the most significant predictor of disease severity after age, said that the new paper described similar rates of chronic disease and obesity, but that it was descriptive, so "it is hard to tell the relative importance of the various comorbidities." She noted that the obesity rate on Long Island is 24 percent, suggesting the hospitalized patients "are disproportionately obese."

The report adds new evidence of the greater susceptibility of men to the coronavirus: Men represented 60 percent of the hospitalized patients in the Northwell system, and an even greater share — 66 percent — of the patients treated in the intensive care unit.

The risk of dying increased with age for all patients but it climbed faster and higher for men. The risk of dying for male patients was in the single digits through their 40s, and then climbed steadily with each decade, with 60 percent of men in their 80s dying. Women's death rates were in the single digits through their 50s, but reached 48 percent for women in their 80s.

Another counterintuitive finding was that adults aged 18 to 65 were more likely to be treated in the intensive care unit or to receive mechanical ventilation than those over 65. The reasons were unclear, but may have reflected a reluctance to seek medical care until the condition was exacerbated.

Additional analyses of the data will try to identify the clusters of symptoms that are most predictive of a patient developing severe coronavirus disease, and of experiencing a cytokine storm, a harmful immune response in which the immune system attacks the body's own cells, Dr. Davidson said.